

REMARKS

By this amendment, Applicants hereby cancel claims 28, 29, 32 and 33. Presently pending claims 30 and 31 are identical to claims 1 and 2, respectively, of United States Patent No. 6,768,820 to Yakhini *et al.*

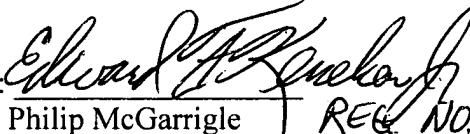
In a paper filed concurrently herewith, Applicants submit a Resubmission of Request for Declaration of An Interference With a Patent Under 37 C.F.R. § 41.202 to account for cancellation of claims 28, 29, 32 and 33 and to suggest an interference between the present application and United States Patent No. 6,768,820.

Entry and consideration of the foregoing is respectfully requested.

Authorization is hereby provided to charge any fees which may be required, including any claim fees and/or fees necessary to maintain the pendency of this application, or credit any overpayment to Deposit Account 19-0089.

Respectfully submitted,  
AFFYMETRIX, INC.

Date: January 20, 2006

By:   
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File No. 1055D

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: )  
)  
DAVID STERN et al. ) Examiner: Raymond, Edward  
)  
Serial No. 10/828,613 ) Art Unit: 2857  
)  
Filed: April 21, 2004 )  
)  
For: METHODS AND APPARATUS )  
FOR DETECTION OF FLUORESCENTLY )  
LABELED MATERIALS )  
\_\_\_\_\_)  
COMMISSIONER OF PATENTS  
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**RESUBMISSION OF REQUEST FOR DECLARATION OF AN INTERFERENCE**  
**WITH A PATENT UNDER 37 C.F.R. § 41.202**

Sir:

Applicants hereby submit their request for declaration of an interference between the present application USSN 10/828,613 ("the '613 application") and United States Patent No. 6,768,820 ("the '820 patent").

## **REMARKS**

Applicants hereby submit their request for declaration of an interference between the present application and the '820 patent to account for cancellation of claims 28, 29, 32 and 33. Concurrent with the submission of this paper, Applicants are filing an amendment in the '613 application, canceling claims 28, 29, 32 and 33.

To facilitate consideration of this request, Applicants attach a proposed PTO-850 "Interference Initial Memorandum" outlining the suggested interference.

### **I. Overview**

Concurrently filed with the Amendment dated January 7, 2005, Applicants filed a Request for Declaration of Interference with a Patent under 37 CFR § 41.202 ("the Request"). In the Request, Applicants requested an interference between the present application, the Yakhini '820 patent, and Yakhini U.S. Patent No. 6,591,196 ("the '196 patent").

As noted at page 2 of the Request, Applicants concurrently requested an interference involving a co-pending Affymetrix application (USSN 10/648,819; "the '819 application") and the Yakhini '196 and Yakhini '820 patents. Each request for interference addressed the claims of the respective application relative to the claims of the Yakhini '196 and Yakhini '820 patents.

In the Third Supplemental Preliminary Amendment and Supplement to Request for Interference dated October 14, 1005, Applicants added claims 32 and 33 and supplemented the originally filed Request.

On December 9, 2005, representatives (Sarah Toomey and Edward Kenehan) for Applicants met with Interference Practice Specialist Hien H. Phan to discuss the

previously submitted requests for interference. Applicants' requests for interference collectively suggested a single interference involving two applications assigned to Affymetrix (the present application and U.S. Application No. 10/648,819) and the two Yakhini '196 and '820 patents. Interference Practice Specialist Phan advised Applicants' representatives that the declaration of interference would be facilitated by requesting two separate interferences, each involving a single patent and a single application. Accordingly, Applicants are now submitting appropriate papers to suggest two separate interferences involving: 1) the present application and the Yakhini '820 patent; and 2) the '819 application and the Yakhini '196 patent.

The courtesy extended by Interference Practice Specialist Phan to Applicants' representatives is most appreciated.

## **II. 37 C.F.R. § 41.202**

37 C.F.R. § 41.202 requires a suggestion for interference to:

- (1) Provide sufficient information to identify the application or patent with which the applicant seeks an interference,
- (2) Identify all claims the applicant believes interfere, propose one or more Counts, and show how the claims correspond to one or more Counts,
- (3) For each Count, provide a claim chart comparing at least one claim of each party corresponding to the Count and show why the claims interfere within the meaning of § 41.203(a),
- (4) Explain in detail why the applicant will prevail on priority,

- (5) If a claim has been added or amended to provoke an interference, provide a claim chart showing the written description for each claim in the applicant's specification, and
- (6) For each constructive reduction to practice for which the applicant wishes to be accorded benefit, provide a chart showing where the disclosure provides a constructive reduction to practice within the scope of the interfering subject matter.

**III. 37 C.F.R. § 41.202(a)(1) - Identification of Patent**

Applicants seek an interference with U.S. Patent No. 6,768,820 ("the '820 patent"), which issued to Yakhini *et al.* on July 27, 2004.

**IV. 37 C.F.R. § 41.202(a)(2) – Identification of Interfering Claims, Proposed Count(s), and Claims Correspondence**

**A. Interfering Claims**

37 C.F.R. § 41.203(a) provides as follows:

An interference exists if the subject matter of a claim of one party would, if prior art, have anticipated or rendered obvious the subject matter of a claim of the opposing party and vice versa.

Applicants' claim 30 corresponds exactly with the '820 patent claim 1. Likewise, Applicants' claim 31 corresponds exactly with the '820 patent claim 2. The claim chart provided in Appendix A compares these claims as required under 37 C.F.R. § 41.202(a)(3). Therefore, at least these two claims are believed to "interfere" within the meaning of § 41.203(a).

## **B. Proposed Count**

For the purpose of the suggested interference, Applicants propose a single Count defined as follows:

Claim 1 of the '820 patent

or

Applicants' Claim 30

As shown in § A, *supra*, claim 1 of the '820 patent corresponds exactly to Applicants' claim 30.

## **C. Correspondence of Claims to Proposed Count**

Under the provisions of 37 C.F.R. § 41.207(b)(2), a claim corresponds to a Count if the subject matter of the Count, treated as prior art to the claim, would have anticipated or rendered obvious the subject matter of the claim.

The claims of the parties that are believed to correspond to the proposed Count are as follows:

Applicants (Stern *et al.*): Claims 30-31

Yakhini ('820 patent): Claims 1-5

Below, Applicants explain why the identified patent and application claims should be designated as corresponding to the proposed Count.

### ***1. Designation of Yakhini '820 Claims 1-5***

In accordance with 37 C.F.R. §§ 41.202(a)(2) and 207(b)(2), the '820 patent claims 1 through 5 should be designated as corresponding to the proposed Count because each claim would have been anticipated or rendered obvious over the proposed Count, treating the proposed Count as prior art to these claims.

Claim 1. Claim 1 of the '820 patent is specifically recited in the definition of the proposed Count. Therefore, claim 1 would have been anticipated by the proposed Count and should be designated as corresponding thereto.

Claim 2. Claim 2 is dependent on claim 1 and further recites that the features are arranged in a rectilinear grid and the pattern comprises a rectilinear grid of rows and columns. Claim 2 additionally recites calculating row and column vectors by summing pixels in the rows and columns. Claim 2 would have been obvious over the proposed Count in view of U.S. Patent Nos. 6,090,555 ('the '555 patent'), 6,349,144 ('the '144 patent') and 5,631,734 ('the '734 patent'). The '555 patent has an effective filing date of December 11, 1997, and issued on July 18, 2000, to Fiekowsky *et al.* The '555 patent is a prior art reference against the '820 patent under 35 U.S.C. § 102(e). The '144 patent has an effective filing date of February 7, 1998, and issued on February 19, 2002, to Shams. The '144 patent is a prior art reference against the '820 patent under 35 U.S.C. § 102(e). The '734 patent issued on May 20, 1997, to Stern *et al.*, and is a prior art reference against the '820 patent under 35 U.S.C. § 102(b).

The '555 patent discloses features that are arranged in a rectilinear grid and defines calculating row and column vectors. *See, e.g.*, column 7, lines 8-63 and column 8, line 20 to column 10, line 32 of the '555 patent. The '734 patent discloses the use of rows and columns (as horizontal and vertical cells). *See, e.g.*, column 15, lines 61-63 of the '734 patent. The '734 patent also discusses pixel intensities at column 15, line 67. *See, also*, column 16, lines 20-26 of the '734 patent. The '144 patent shows examples of features disposed in grids of rows and columns in Figures 1, 2, and 4 through 7. *See, also*, column 5, lines 28-47 of the '144 patent. The '144 patent also discloses employing

row and column values in the computation of a direction vector and shifting each grid point towards regions with the highest intensity values, *i.e.* “peaks”. *See, e.g.*, column 6, lines 36-43 and column 7, lines 17-55 of the ‘144 patent. The ‘144 patent additionally shows summing pixels in rows and columns in the mathematical formulae presented at column 7, lines 23-55, where there are pixel intensity values associated with “n” columns and “m” rows used in various computations to compute an average or weighted sum of vectors described at column 7, lines 2-16. Therefore, claim 2 would have been obvious over the proposed Count in view of the ‘555, ‘734 and ‘144 patents and should therefore be designated as corresponding thereto.

Claim 3. Claim 3 is dependent on claim 1 and further recites obtaining information on the array layout using a code associated with an array, and constructing the second pattern based on the obtained array layout information. Claim 3 would have been obvious over the proposed Count in view of United States Patent Nos. 6,399,365 (“the ‘365 patent”) and 5,945,334 (“the ‘334 patent”). The ‘365 patent has an effective filing date of June 8, 1994, and issued on June 4, 2002, to Besemer *et al.* The ‘365 patent is a prior art reference against the ‘820 patent under 35 U.S.C. § 102(e). The ‘334 patent has an effective filing date of June 8, 1994 and issued on August 31, 1999, to Besemer *et al.* The ‘334 patent is a prior art reference against the ‘820 patent under 35 U.S.C. § 102(a).

The code may be a bar code (*see, e.g.*, the ‘820 patent at column 27, line 44). Bar codes for arrays are claimed and disclosed in the ‘365 patent. *See, e.g.* Figures 5A and 5B; Abstract; column 8, lines 8-35 and claims 1, 2, 7, 8, 10, 41 and 47 of the ‘365 patent. This disclosure in the ‘365 patent was issued earlier in the ‘334 patent (*see*



Figures 5A and 5B; and column 6, line 57 to column 7, line 18), and its foreign equivalent (EP 695 941) was published on February 7, 1996. Therefore, claim 3 would have been obvious over the proposed Count in view of the '365 and '334 patents and should therefore be designated as corresponding thereto.

Claim 4. Claim 4 is dependent on claim 3 and further recites that the array layout information is obtained from a remote location. Claim 4 would have been obvious over the proposed Count in view of the '144 patent. Layout information is obtained after synthesis and a special file is sent to the customer with the commercial array. (*See, e.g.*, column 5, line 63 to column 6, line 14; and column 13, lines 35-62 of the '144 patent.) Synthesis occurs at the manufacturing facility, which may likely be in another building from where a customer would use the array. Therefore, claim 4 would have been obvious over the proposed Count in view of the '144 patent and should therefore be designated as corresponding thereto.

Claim 5. Claim 5 is dependent on claim 1 and further specifies that the orientation comprises rotational orientation. Claim 5 would have been obvious over the proposed Count in view of the '734 patent. The '734 patent discloses analysis of data to include "the steps of determining intensity as a function of substrate position," where the function of substrate position is analogous to an orientation of the data signals associated with positions on the substrate. *See, e.g.*, column 2, lines 16-19 and column 9, lines 19-37 of the '734 patent. Furthermore, the '734 patent illustrates that a rotational orientation is inherently included in the range of possible orientations of a 2 dimensional probe array positioned in a perpendicular plane to an incident light beam. *See, e.g.*, Figures 1A-1C of the '734 patent with respect to substrate 230. Therefore, claim 5 would have been

obvious over the proposed Count in view of the '734 patent and should therefore be designated as corresponding thereto.

## ***2. Designation of Applicants' Claims 30-31***

In accordance with 37 C.F.R. §§ 41.202(a)(2) and 207(b)(2), Applicants' claims 30 and 31 should be designated as corresponding to the proposed Count. Applicants' claim 30 is expressly recited in the definition of the proposed Count and, therefore, would be anticipated by the proposed Count. Moreover, Applicants' claims 30 and 31 are the same as the '820 patent claims 1 and 2 discussed above and, therefore, should be designated as corresponding to the proposed Count.

## **V. 37 C.F.R. §§ 41.202 (a)(4) and 41.202(d) – Applicant Will Prevail on Priority**

Applicants' present application claims benefit through a series of continuation applications to an application filed on February 10, 1994, *i.e.*, U.S. Patent Application No. 08/195,889 ("the '889 application"). The chart set forth in Appendix B shows that the '889 application provides a constructive reduction to practice within the scope of the interfering subject matter.

In comparison, the earliest possible constructive reduction to practice to which the '820 patent may be accorded benefit is an application (09/589,046) filed on June 6, 2000.

Therefore, Applicants will *prima facie* prevail on priority based on a constructive reduction to practice that precedes (by six years and four months) the earliest possible constructive reduction to practice that may be accorded to the '820 patent.

**VI. 37 C.F.R. §§ 41.202(a)(5) – Written Description For Each Claim In The Applicant’s Specification**

Applicants’ claims 30 and 31 were copied from the ‘820 patent. Applicants apply the terms of claims 30 and 31 (corresponding to ‘820 patent claims 1 and 2, respectively) to the disclosure of the present application in the table set forth in Appendix C.

**VII. 37 C.F.R. § 41.202(a)(6) – Applicants’ Earliest Constructive Reduction to Practice**

According to 37 C.F.R. § 41.201, a “constructive reduction to practice” means “a described and enabled anticipation under 35 U.S.C. § 102(g)(1) in a patent application of the subject matter of a count.” Likewise, pursuant to 37 C.F.R. § 41.201, an “earliest constructive reduction to practice” means “the first constructive reduction to practice that has been continuously disclosed through a chain of patent applications including in the involved application or patent. For the chain to be continuous, each subsequent application must have been co-pending under 35 U.S.C. §§ 120 or 121 or timely filed under 35 U.S.C. §§ 119 or 365(a).”

For the purpose of the suggested interference, Applicants are entitled to the benefit of U.S. Patent Application Serial No. 08/195,889, filed February 10, 1994, which constitutes a constructive reduction to practice of an embodiment within the scope of the interfering subject matter. In the table in Appendix B, Applicants show a constructive reduction to practice in the ‘889 application for Applicants’ claim 30, which is expressly recited in the definition of the proposed Count.

A constructive reduction to practice of an embodiment within the scope of the interfering subject matter has been continuously disclosed from the earliest filed

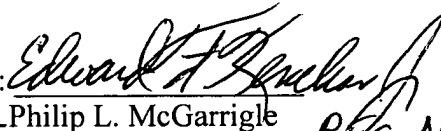
application, the '889 application, through a series of applications, to the present application. Specifically, the present application is a continuation of U.S. Patent Application Serial No. 09/699,852, filed October 30, 2000, now U.S. Patent No. 6,741,344; which is a continuation of U.S. Patent Application Serial No. 08/823,824, filed March 25, 1997, now U.S. Patent No. 6,141,096; which in turn is a continuation of U.S. Patent Application Serial No. 08/195,889, filed February 10, 1994, now U.S. Patent No. 5,631,734. Therefore, the '889 application is believed to constitute Applicants' earliest and continuously disclosed constructive reduction to practice of an embodiment within the scope of the proposed Count.

#### **VIII. Conclusion**

In view of the above, Applicants respectfully request the Examiner to advance this case to the Board of Patent Appeals and Interferences for the declaration of an interference between Applicants' present application and the '820 patent. Applicants respectfully request the Examiner to handle this matter on an expedited basis, taking into account the pending request for interference filed in the '819 application with respect to the '196 patent. Specifically, Applicants suggest that the Board declare two separate interferences involving: 1) the present application and the Yakhini '820 patent; and 2) the '819 application and the Yakhini '196 patent.

Respectfully submitted,  
AFFYMETRIX, INC.

Date: January 20, 2006

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**Appendix A**

**Claim Chart Comparing Interfering Claims**

| <b>Applicants' Claim</b>  | <b>USP 6,768,820 Claim</b>   |
|---|--|
| <p>30. A method for evaluating an orientation of a molecular array having features arranged in a pattern, the method comprising:</p> <p>(a) receiving an image of the molecular array produced by scanning the molecular array to determine data signals emanating from discrete positions on a surface of the molecular array;</p> <p>(b) calculating an actual result of a function on pixels of the image lying in a second pattern;</p> <p>(c) comparing the result of step (b) with an expected result which would be obtained if the second pattern had a predetermined orientation on the array; and</p> | <p>1. A method for evaluating an orientation of a molecular array having features arranged in a pattern, the method comprising:</p> <p>(a) receiving an image of the molecular array produced by scanning the molecular array to determine data signals emanating from discrete positions on a surface of the molecular array;</p> <p>(b) calculating an actual result of a function on pixels of the image lying in a second pattern;</p> <p>(c) comparing the result of step (b) with an expected result which would be obtained if the second pattern had a predetermined orientation on the array; and</p> |

| Applicants' Claim   | USP 6,768,820 Claim   |
|---|---|
| (d) when the results of the comparison in step (c) are outside a predetermined difference, then altering the orientation of the second pattern on the array and repeating steps (b) and (c), and repeating the foregoing as needed until the results of the comparison are within the predetermined difference. | (d) when the results of the comparison in step (c) are outside a predetermined difference, then altering the orientation of the second pattern on the array and repeating steps (b) and (c), and repeating the foregoing as needed until the results of the comparison are within the predetermined difference. |
| 31. The method of claim 30 wherein: the features are arranged in a rectilinear grid and the pattern comprises a rectilinear grid of rows and columns; and step (b) comprises calculating row and column vectors by summing pixels in the rows and columns.  | 2. The method of claim 1 wherein: the features are arranged in a rectilinear grid and the pattern comprises a rectilinear grid of rows and columns; and step (b) comprises calculating row and column vectors by summing pixels in the rows and columns.  |

## **Appendix B**

### **Applicants' Earliest Constructive Reduction To Practice**

| <b>Claim 30<br/>(recited in proposed Count)</b>   | <b>Specification of 08/195,889</b>  |
|---|---|
| 30. A method for evaluating an orientation of a molecular array having features arranged in a pattern, the method comprising:   | <p>“Referring to Fig. 6, the system is initialized by requesting the user to enter the name of a image file of interest. At step 601, the system retrieves the image file and prompts the user to enter the four corners of the image at step 602. Next, at steps 603 and 604, the system prompts the user for the number of cells located horizontally and vertically on the substrate. From the information entered by the user and the image file, the system creates a computer representation of a histogram for each cell at step 605. The histogram (at least in the form of a computer file) plots the number of pixels versus intensity.” p. 26, lines 22-32; Figs. 6A and 6B.</p>   |
| (a) receiving an image of the molecular array produced by scanning the molecular array to determine data signals emanating from discrete positions on a surface of the molecular array; | <p>“Upon completion of the conversion process, an image file representing fluorescence intensity is created and stored in memory at step 507. At step 508, the system may optionally display the image file. The intensity level of the displayed image varies from region to region according to the binding affinity of the targets to the polymer sequence therein. The brightest signals typically represent the greatest binding affinity while signals of lesser intensity represent lesser degrees of binding affinity.” p. 25, lines 29-37</p> <p>“Fig. 6 illustrates one embodiment of the of a system which provides for the removal of these undesirable spurious data points as well as the determination of the relative binding efficiency of the sample from an average of the remaining data points.</p> <p>Referring to Fig. 6, the system is initialized by requesting the user to enter the name of a image file of interest. At step 601, the system retrieves the image file and prompts the user to enter the four corners of the image at step 602. Next, at steps 603 and 604, the system prompts the user for the number of cells located horizontally and vertically on the substrate. From the information entered by the user and the image file, the</p> |



| <b>Claim 30<br/>(recited in proposed Count)</b>  | <b>Specification of 08/195,889</b>  |
|--|---|
|  | <p>system creates a computer representation of a histogram for each cell at step 605. The histogram (at least in the form of a computer file) plots the number of pixels versus intensity.</p> <p>At step 606, the main data analysis loop is performed for each synthesis site. Analyzing the histogram for the respective synthesis site, the system calculates the total intensity level and number of pixels for the bandwidth centered around varying intensity levels. For example, as shown in the plots to the right of step 606, the system calculates the number of pixels in the bandwidth using boxcar averaging technique. This process is then repeated until the entire range of intensities have been scanned. At step 607, the system determines which band has the highest total number of pixels. The data from this band is used to derive statistical data for each synthesis site. The statistical data include the peak value, mean intensity and standard deviation of intensity level. Thus, data that are beyond this band are excluded from the statistical analysis. Assuming the bandwidth is selected to be reasonably small, this procedure will have the effect of eliminating spurious data located at both the higher and lower intensity levels. This loop is repeated until all the cells have been processed.” p. 26, line 22-p. 27, line 13; Figs. 1A-C, 2, 3A, 3B, 4A, 4B, 4C and 5.</p> |
| (b) calculating an actual result of a function on pixels of the image lying in a second pattern;   | <p>“At step 610, an image in the form of a grid representing the substrate is displayed. Each block in the grid represents a region synthesized with a polymer sequence. The image intensity of each region will vary according to the binding affinity between the polymer sequence and targets therein. Statistical data, such as the peak and average intensity corresponding to each region are also displayed.” p. 27, lines 14-20.</p>  |
| (c) comparing the result of step (b) with an expected result which would be obtained if the second pattern had a predetermined orientation on the array; and | <p>“At step 612, the system retrieves the file created during the synthesis process of the substrate being analyzed. The synthesis file contains sequence information as a function of location. The system integrates the synthesis file with the image file and sorts the data therein. Through this process, the molecular sequence of complementary probes and the</p>  |

| Claim 30<br>(recited in proposed Count)   | Specification of 08/195,889   |
|---|---|
|   | intensity as a function of location is available.” p. 27, lines 31-37.  |
| (d) when the results of the comparison in step (c) are outside a predetermined difference, then altering the orientation of the second pattern on the array and repeating steps (b) and (c), and repeating the foregoing as needed until the results of the comparison are within the predetermined difference. | <p>“Fig. 6 illustrates one embodiment of the of a system which provides for the removal of these undesirable spurious data points as well as the determination of the relative binding efficiency of the sample from an average of the remaining data points.</p> <p>Referring to Fig. 6, the system is initialized by requesting the user to enter the name of a image file of interest. At step 601, the system retrieves the image file and prompts the user to enter the four corners of the image at step 602. Next, at steps 603 and 604, the system prompts the user for the number of cells located horizontally and vertically on the substrate. From the information entered by the user and the image file, the system creates a computer representation of a histogram for each cell at step 605. The histogram (at least in the form of a computer file) plots the number of pixels versus intensity.” p. 26, lines 17-32;</p> <p>“Further, the user, at step 614, may analyze a specific synthesis region within the grid. If instructed, the system will display the corresponding substrate position, number of photons, number of pixels and the molecular sequence at that synthesis site. The data analysis software also provides the user with many functions which are common to image processing, such as magnification and image enhancement.” p. 28, lines 1-7; Figs. 6A and 6B.</p> |

## Appendix C

### Written Description In Applicants' Specification 10/828,613 For Claims 30 and 31

| Claim   | Disclosure in Applicants' Specification 10/828,613  |
|---|---|
| 30. A method for evaluating an orientation of a molecular array having features arranged in a pattern, the method comprising:   | <p>“Referring to Fig. 6, the system is initialized by requesting the user to enter the name of a image file of interest. At step 601, the system retrieves the image file and prompts the user to enter the four corners of the image at step 602. Next, at steps 603 and 604, the system prompts the user for the number of cells located horizontally and vertically on the substrate. From the information entered by the user and the image file, the system creates a computer representation of a histogram for each cell at step 605. The histogram (at least in the form of a computer file) plots the number of pixels versus intensity.” p. 26, lines 22-32; Figs. 6A and 6B.</p>   |
| (a) receiving an image of the molecular array produced by scanning the molecular array to determine data signals emanating from discrete positions on a surface of the molecular array; | <p>“Upon completion of the conversion process, an image file representing fluorescence intensity is created and stored in memory at step 507. At step 508, the system may optionally display the image file. The intensity level of the displayed image varies from region to region according to the binding affinity of the targets to the polymer sequence therein. The brightest signals typically represent the greatest binding affinity while signals of lesser intensity represent lesser degrees of binding affinity.” p. 25, lines 29-37</p> <p>“Fig. 6 illustrates one embodiment of the of a system which provides for the removal of these undesirable spurious data points as well as the determination of the relative binding efficiency of the sample from an average of the remaining data points.</p> <p>Referring to Fig. 6, the system is initialized by requesting the user to enter the name of a image file of interest. At step 601, the system retrieves the image file and prompts the user to enter the four corners of the image at step 602. Next, at steps 603 and 604, the system prompts the user for the number of cells located horizontally and vertically on the substrate. From the information entered by the user and the image file, the system creates a computer representation of a histogram for each cell at step 605. The histogram (at least in the form of a computer file) plots the number of pixels versus intensity.</p> <p>At step 606, the main data analysis loop is performed for each synthesis site. Analyzing the histogram for the respective synthesis site, the system calculates the total intensity level and number of pixels for the bandwidth centered around varying</p> |

| Claim   | Disclosure in Applicants' Specification 10/828,613  |
|---|---|
|   | <p>intensity levels. For example, as shown in the plots to the right of step 606, the system calculates the number of pixels in the bandwidth using boxcar averaging technique. This process is then repeated until the entire range of intensities have been scanned. At step 607, the system determines which band has the highest total number of pixels. The data from this band is used to derive statistical data for each synthesis site. The statistical data include the peak value, mean intensity and standard deviation of intensity level. Thus, data that are beyond this band are excluded from the statistical analysis. Assuming the bandwidth is selected to be reasonably small, this procedure will have the effect of eliminating spurious data located at both the higher and lower intensity levels. This loop is repeated until all the cells have been processed." p. 26, line 22-p. 27, line 13; Figs. 1A-C, 2, 3A, 3B, 4A, 4B, 4C and 5.</p> |
| (b) calculating an actual result of a function on pixels of the image lying in a second pattern;  | <p>"At step 610, an image in the form of a grid representing the substrate is displayed. Each block in the grid represents a region synthesized with a polymer sequence. The image intensity of each region will vary according to the binding affinity between the polymer sequence and targets therein. Statistical data, such as the peak and average intensity corresponding to each region are also displayed." p. 27, lines 14-20.</p>  |
| (c) comparing the result of step (b) with an expected result which would be obtained if the second pattern had a predetermined orientation on the array; and  | <p>"At step 612, the system retrieves the file created during the synthesis process of the substrate being analyzed. The synthesis file contains sequence information as a function of location. The system integrates the synthesis file with the image file and sorts the data therein. Through this process, the molecular sequence of complementary probes and the intensity as a function of location is available." p. 27, lines 31-37.</p>   |
| (d) when the results of the comparison in step (c) are outside a predetermined difference, then altering the orientation of the second pattern on the array and repeating steps (b) and (c), and repeating the foregoing as needed until the results of the comparison are within the predetermined difference. | <p>"Fig. 6 illustrates one embodiment of the of a system which provides for the removal of these undesirable spurious data points as well as the determination of the relative binding efficiency of the sample from an average of the remaining data points.</p> <p>Referring to Fig. 6, the system is initialized by requesting the user to enter the name of a image file of interest. At step 601, the system retrieves the image file and prompts the user to enter the four corners of the image at step 602. Next, at steps 603 and 604, the system prompts the user for the number of cells located horizontally and vertically on the substrate. From the information entered by the user and the image file, the system creates a computer representation of a histogram for each cell at step 605. The histogram (at least in the form of a computer file) plots the number of pixels versus intensity." p. 26, lines 17-32;</p>                             |

| Claim   | Disclosure in Applicants' Specification 10/828,613   |
|---|--|
|   | <p>“Further, the user, at step 614, may analyze a specific synthesis region within the grid. If instructed, the system will display the corresponding substrate position, number of photons, number of pixels and the molecular sequence at that synthesis site. The data analysis software also provides the user with many functions which are common to image processing, such as magnification and image enhancement.” p. 28, lines 1-7; Figs. 6A and 6B.</p>  |
| <p>31. The method of claim 30 wherein:</p> <p>the features are arranged in a rectilinear grid and the pattern comprises a rectilinear grid of rows and columns; and</p> | <p>“Referring to Fig. 6, the system is initialized by requesting the user to enter the name of a image file of interest. At step 601, the system retrieves the image file and prompts the user to enter the four corners of the image at step 602. Next, at steps 603 and 604, the system prompts the user for the number of cells located horizontally and vertically on the substrate. From the information entered by the user and the image file, the system creates a computer representation of a histogram for each cell at step 605. The histogram (at least in the form of a computer file) plots the number of pixels versus intensity.” p. 26, lines 22 – 32;</p> <p>“At step 610, an image in the form of a grid representing the substrate is displayed. Each block in the grid represents a region synthesized with a polymer sequence. The image intensity of each region will vary according to the binding affinity between the polymer sequence and targets therein. Statistical data, such as the peak and average intensity corresponding to each region are also displayed.” p. 27, lines 14-20; Figs. 6A and 6B.</p> |
| <p>step (b) comprises calculating row and column vectors by summing pixels in the rows and columns.</p>   | <p>“At step 606, the main data analysis loop is performed for each synthesis site. Analyzing the histogram for the respective synthesis site, the system calculates the total intensity level and number of pixels for the bandwidth centered around varying intensity levels. For example, as shown in the plots to the right of step 606, the system calculates the number of pixels in the bandwidth using boxcar averaging technique. This process is then repeated until the entire range of intensities have been scanned. At step 607, the system determines which band has the highest total number of pixels. The data from this band is used to derive statistical data for each synthesis site. The statistical data include the peak value, mean intensity and standard deviation of intensity level.” p. 26, line 33 – p. 27, line 8; Figs. 6A and 6B.</p>  |

**INTERFERENCE INITIAL MEMORANDUM**

Count # \_\_\_\_\_

To the Board of Patent Appeals and Interferences:

**An interference is proposed involving the following 2 parties**

| PARTY                          | APPLICATION NO. | FILING DATE | PATENT NO., IF ANY | ISSUE DATE, IF ANY |
|--------------------------------|-----------------|-------------|--------------------|--------------------|
| Junior Party<br>Yakhini et al. | 09/659,415      | 09/11/2000  | 6,768,820          | 07/27/2004         |

If the involved is a patent, have its maintenance fees been paid? Yes ☐ No ☐ Not due yet ☒

Proposed priority benefit (list all intervening applications necessary for continuity):

| COUNTRY | APPLICATION NO. | FILING DATE | PATENT NO., IF ANY | ISSUE DATE, IF ANY |
|---------|-----------------|-------------|--------------------|--------------------|
| USA     | 09/659,415      | 09/11/2000  | 6,768,820          | 07/27/2004         |
| USA     | 09/589,046      | 06/06/2000  | 6,591,196          | 07/08/2003         |

The claim(s) of this party corresponding to Proposed Count 1:

1-5

PATENTED OR PATENTABLE PENDING CLAIMS

Patented claims 1-5

UNPATENTABLE PENDING CLAIMS

N/A

The claim(s) of this party NOT corresponding to Proposed Count 1:

None

| PARTY                        | APPLICATION NO. | FILING DATE | PATENT NO., IF ANY | ISSUE DATE, IF ANY |
|------------------------------|-----------------|-------------|--------------------|--------------------|
| Senior Party<br>Stern et al. | 10/828,613      | 04/21/2004  | N/A                | N/A                |

If the involved is a patent, have its maintenance fees been paid? Yes ☐ No ☐ Not due yet ☒

Proposed priority benefit (list all intervening applications necessary for continuity):

| COUNTRY | APPLICATION NO. | FILING DATE | PATENT NO., IF ANY | ISSUE DATE, IF ANY |
|---------|-----------------|-------------|--------------------|--------------------|
| USA     | 10/828,613      | 04/21/2004  | N/A                | N/A                |
| USA     | 09/699,852      | 10/30/2000  | 6,741,344          | 05/25/2004         |
| USA     | 08/823,824      | 03/25/1997  | 6,141,096          | 10/31/2000         |
| USA     | 08/195,889      | 02/10/1994  | 5,631,734          | 05/20/1997         |

The claim(s) of this party corresponding to Proposed Count 1:

30-31

PATENTED OR PATENTABLE PENDING CLAIMS

Patentable pending claims 30-31

UNPATENTABLE PENDING CLAIMS

None

The claim(s) of this party NOT corresponding to Proposed Count 1:

None

(Check off each step, if applicable) **INSTRUCTIONS**

- ☐ 1. Obtain all files listed above.
- ☐ 2. Confirm that the proposed involved claims are still active and all corrections and entered amendments have been considered. The patents must not be expired for, among other things, failure to pay a maintenance fee (Check PALM screen 2970).
- ☐ 3. If one of the involved files is a published application or a patent, check for compliance with 35 U.S.C. 135(b).
- ☐ 4. Obtain a certified copy of any foreign benefit documents where necessary (37 CFR 1.55(a)).
- ☐ 5. Discuss the proposed interference with an Interference Practice Specialist in your Technology Center.

|      |  |          |                  |
|------|--|----------|------------------|
| DATE | PRIMARY EXAMINER (signature)   | ART UNIT | TELEPHONE NUMBER |
| DATE | INTERFERENCE PRACTICE SPECIALIST or TECHNOLOGY CENTER DIRECTOR (signature) |          | TELEPHONE NUMBER |